**UNITED STATES ENVIRONMENTAL PROTECTION AGENCY**
REGION 5
77 WEST JACKSON BOULEVARD
CHICAGO, IL 60604-3590

MAY 21 2010

REPLY TO THE ATTENTION OF:
**WW-16J**

U.S. Army Corps of Engineers, Louisville District
Colonel Keith A. Landry, District Commander
600 Dr. Martin Luther King Place
Louisville, Kentucky 40202

Re: Public Notice No. LRL-2010-193-GJD, Farmersburg Bear Run Amendment #4 (S-256-4) / Peabody Midwest, LLC

Dear Colonel Landry:

The United States Environmental Protection Agency (EPA) has received the subject public notice issued on April 9, 2010 as well as the Section 404 Permit Application dated March 18, 2010. EPA reviewed the subject public notice and permit application and offers the following comments regarding its compliance with the Clean Water Act Section 404(b)(1) Guidelines.

The applicant, Peabody Midwest, LLC (Peabody) proposes to fill 83,324 linear feet (lf) of ephemeral streams and 43,362 lf of intermittent streams for a total of 126,686 lf of stream impacts. They also propose to fill 10.42 acres of palustrine forested wetland (PFO), 10.85 acres of palustrine emergent wetland (PEM), 5.39 acres of palustrine unconsolidated bottom (PUB) wetland and 0.8 acres of palustrine scrub-shrub weltand (PSS) for a total of 27.46 acres of wetland impacts. The purpose of the project is to expand surface coal mining activities by 2,666.5 acres on the Bear Run Mine in the Buttermilk Creek, Middle Fork Creek, Maria Creek, Pollard Ditch, and Brewer Ditch watersheds (tributaries of the Lower White River and Middle Wabash-Busseron Creek). The proposed project is located in one very large parcel of land (Area 3) and 4 smaller parcels (Areas 1, 2, 4 and 5) south of Dugger in Sullivan County, Indiana.

Peabody is proposing to remove all economically recoverable coal from the Amendment 4 areas. Coal would be removed during excavation of the area, processed, and sold. Per the public notice, the area would be returned to approximate original contours, covered with stockpiled soil material, revegetated, and returned to an approved post-mine land use through the Surface Mining Control and Reclamation Act (SMCRA) process.

The EPA finds this project may have substantial and unacceptable adverse impacts on the White River, an aquatic resource of national importance (ARNI). Therefore, we recommend denial of the project, as currently proposed. This letter

follows the field level procedures outlined in the August 1992 Memorandum of Agreement between the EPA and the Department of the Army, Part IV, paragraph 3(a) regarding Section 404(q) of the Clean Water Act. EPA believes that impacting 126,686 lf of several headwater tributary systems to the Lower White River and Middle-Wabash Busseron Creek and 27.46 acres of associated wetlands will have adverse effects on the aquatic environment. Through our review of the permit application, we have identified significant issues related to proposed impacts to streams and wetlands.

The White River is a two-forked river which runs through a substantial portion of central and southern Indiana, and is the major tributary to the Wabash River. The White River is listed by the State of Indiana Natural Resources Commission as an Outstanding River. The listing is due to the river's consideration for inclusion in the National Wild and Scenic Rivers System, identification by state natural heritage programs as a river of outstanding natural importance, and because of its use for state-designated canoe/boating routes. In 1997, the White River was named one of *American Rivers* "most endangered and threatened rivers" due in part to loss of riparian areas and water withdrawals. The loss of headwater tributaries and wetlands caused by the proposed project has the potential to exacerbate existing water quality impairments and further degrade watershed conditions.

As you know, the 404(b)(1) Guidelines require an applicant to demonstrate there are no practicable alternatives available that would have a less adverse impact on the aquatic environment for non-water dependant activities. For special aquatic sites, such as wetlands, the Guidelines presume that less damaging upland alternatives are available for these activities unless demonstrated otherwise by the applicant.[1] After a review of the available information, EPA believes the applicant has not demonstrated that impacts have been avoided and minimized to the maximum extent practicable and the project may not be in compliance with the 404(b)(1) Guidelines at this time. Identification of the least environmentally damaging practicable alternative (LEDPA) may not be possible with the information presently available.

According to the Guidelines, the applicant should present a reasonable range of alternatives that reduce/minimize the impacts to streams and wetlands onsite. The amount of effort and detail in the analysis should be commensurate with the level of aquatic resource impacted, which we believe to be significant. At present, the alternatives analysis is lacking detailed information that needs to be considered under the 404(b)(1) Guidelines. The applicant must then demonstrate that a sequence of steps has been followed to avoid and minimize impacts to the maximum extent possible and compensate for any unavoidable losses to be in compliance with the 404(b)(1) Guidelines. These steps have not been clearly documented in the Public Notice or the Section 404 permit application. Finally, the significance of the permit application in the context of other actions in the Lower White River and Middle Wabash-Busseron Creek watersheds is not appropriately characterized. Cumulative impacts to the watershed should be more completely addressed and compensatory mitigation for this project should be proposed in light of the significant past, present, and foreseeable effects

[1] 40 C.F.R. § 230.10(a)(3)

occurring in these watersheds. EPA's detailed comments on the Section 404 permit application are included as Attachment 1 to this letter.

Based on the discussion above, EPA believes that this proposal may be a candidate for an Environmental Impact Statement (EIS). As you make your determination whether to prepare an EIS, we recommend that you consider the large-scale nature of the proposed project's impacts, e.g., the loss of approximately 24 miles of stream and 27 acres of wetland and the potential cumulative impacts to the watersheds. EPA recommends the applicant provide a wider range of alternatives, better documentation of avoidance and minimization efforts, and a comprehensive cumulative impacts analysis so that we may evaluate impacts of the project and compliance with the 404(b)(1) Guidelines. Additionally, it is not clear whether the mitigation proposal, as currently drafted, would serve as a basis for supporting a Finding of No Significant Impact (FONSI). We would appreciate the opportunity to discuss with you this issue of whether an EIS should be prepared.

In conclusion, EPA believes this project as proposed may result in substantial and adverse impacts to an ARNI, specifically the White River. This letter is pursuant to Part IV, paragraphs 3(a) of the August 1992 CWA Section 404(q) Memorandum of Agreement between the EPA and the Department of the Army. Please contact Wendy Melgin of my staff at (312) 886-7745 with any questions you may have.

Sincerely,

for Tinka G. Hyde, Director
Water Division

Enclosures

cc: George J. Delancey, Louisville District (w/encl.)
Newburgh Field Office
P.O. Box 489
Newburgh, Indiana 47629-0489

Marylou Poppa Renshaw, IDEM (w/encl.)
100 N. Senate Avenue, Room IGCN 1255
Indianapolis, Indiana 46204

Michael Litwin, USFWS (w/encl.)
Bloomington Ecological Services Field Office
620 South Walker Street
Bloomington, Indiana 47403

## Attachment 1 - Detailed comments on the Section 404 Permit Application

### Watershed Condition & Aquatic Resources of National Importance

The White River is a Traditionally Navigable Water (TNW) as defined by the Corps of Engineers, Louisville District. The White River is listed by the State of Indiana Natural Resources Commission as an Outstanding River. The listing is due to the river's consideration for inclusion in the National Wild and Scenic Rivers System, identification by state natural heritage programs as a river of outstanding natural importance, and because of its use for state-designated canoe/boating routes. It should be noted that the USDA-Natural Resources Conservation Service, conducted a Rapid Watershed Assessment of the Lower White River watershed. According to the assessment, excessive amounts of sediments, nutrients, and bacteria degrade the water quality in these watersheds, causing unbalanced fish communities with depressed populations and limited diversity.[1]

The Busseron Creek watershed is approximately 235 square miles in size and is located in Southwest Indiana. A majority of the watershed lies in Sullivan County, Indiana. It also occupies smaller portions of Clay, Greene and Vigo Counties. The creek is listed on the 303(d) list of Impaired Waters in the State of Indiana. While the watershed is listed for impairments, the downstream portions of the waterbody are important fishing areas for local sportsmen who track their activities on various websites such as hookandbullet.com.

Additionally, watersheds in west-central Indiana, "although physically far removed from an ocean...have a direct impact on water quality in the Gulf of Mexico. It has been established that Indiana contributes 5-10% of phosphorus and 10-17% of the nitrogen that contribute to the Dead Zone. USGS maps indicate that nutrient yields of western Indiana, including the Busseron Creek Watershed, are disturbingly high."[2]

During mining, sediment concentrations and load rates increase dramatically compared to the pre-mining condition.[3] Increased erosion and transport of sediments associated with mining can alter the flow rate of stream channels downstream, transport chemicals downstream, and adversely affect downstream aquatic ecosystems. Studies have found that more frequent, higher daily flow volumes occur during the active phases of mining compared to pre-mining conditions.[4] This may be attributable to the loss of vegetative cover that normally reduces runoff volumes and promotes absorption of water for vegetation growth. Although modern reclamation practices may reduce some of the environmental effects of surface coal mining, significant harm to a landscape and its watershed still occurs during the active phases of coal extraction.

---

[1] http://www.in.nrcs.usda.gov/technical/RWA/Lower%20White/Lower%20White.pdf
[2] http://www.busseron.org/BCWP-PTC_Shrimp.htm
[3] Bonta, James V., 2000. "Impact Of Coal Surface Mining And Reclamation On Suspended Sediment In T Three Ohio Watersheds." *Journal of the American Water Resources Association* (JAWRA) 36(4): 869-887.
[4] Bonta, James V., C. R. Amerman, T. J. Harlukowicz, and W. A. Dick, 1997. Impact of Coal Surface Mining on Three Ohio Watersheds-Surface-Water Hydrology. *Journal of the American Water Resources Association* (JAWRA) 33(4): 907-917.

EPA has attached a map titled "Cumulative Impact of Mining in Sullivan County and Surrounding Area" to this letter (Attachment 2). The map illustrates the location of completed previous mining from 1884 to the present and highlights the areas of the proposed project (Bear Run Amendment 4). The approximate location of the currently permitted Bear Run East Pit is also indicated on the map. (The Bear Run East Pit project will be detailed in the "Currently Permitted and Proposed Impacts" section below.) The map also indicates 303(d) listed waters by 12-digit HUC in the area. 12-digit HUC watersheds should be used as the base or minimum area for assessing cumulative impacts. The information about the location of completed previous mining was taken from https://coalminemapes.indiana,edu/downlaods.html. It should be noted that this map does not include active mining in the watershed with the exception of the general location of the currently permitted Bear Run East Pit project.

**Identification of Direct Impacts & Alternatives Analysis**

As you know, the 404(b)(1) Guidelines require that the applicant demonstrate there are no practicable alternatives available that would have a less adverse impact on the aquatic environment for non-water dependant activities. For special aquatic sites, such as wetlands, the Guidelines presume that less damaging upland alternatives are available for these activities unless demonstrated otherwise by the applicant.[5] The applicant must follow a sequence of steps to be in compliance with the 404(b)(1) Guidelines; which begins with avoidance of impacts, followed by minimization of impacts, and finally compensation for any remaining unavoidable impacts.

EPA believes that impacting 126,686 lf of several headwater tributary systems to the White River and Busseron Creek and 27.46 acres of associated wetlands may have substantial and unacceptable adverse effects through the elimination of headwater stream functions, loss of diluting headwaters, and loss of nutrients and habitat. Headwater streams encompass over 80% of stream networks and watershed land areas.[6] Headwater streams and their associated wetland and riparian systems provide floodwater retention, improve water quality by diluting and filtering pollutants from surface water runoff and provide processed leaf litter and organic matter, which are important to sustaining biological communities in downstream waters. Collectively, organic interactions and improvements in water quality and stream channel conditions provide habitat for aquatic fauna. Additionally, terrestrial fauna including mammals and passerines benefit from the interconnected stream corridors that create edge habitat, travel corridors and supply cover and food sources. Headwater streams are important to the ecologic and biological integrity of downstream watersheds. Changes in land use in or near headwater stream systems such as deforestation, mining, agricultural development, and urbanization will affect the water quality and food web dynamics in downstream watersheds.

---

[5] 40 C.F.R. § 230.10(a)(3)

[6] Naiman, R.J., 1983. The Annual Pattern and Spatial Distribution of Aquatic Oxygen Metabolism in Boreal Forest Watersheds. *Ecological Monographs* 53:73-94.

The applicant should present a reasonable range of alternatives that reduce/minimize impacts to streams and wetlands onsite. The amount of effort and detail in the analysis should be commensurate with the level of aquatic resource impacted. At present, references to avoidance and minimization are vague and the alternatives analysis is not sufficient when compared to the magnitude of the proposed impacts. EPA recommends that the applicant provide a wider range of alternatives and better documentation of avoidance and minimization efforts so that the Corps may better evaluate compliance with the 404(b)(1) Guidelines. Identification of the least environmentally damaging practicable alternative (LEDPA) is not possible with the information presently available.

**Detailed comments on the application's alternatives analysis**

- On page 3, the applicant asserts that the "additional range of aquatic habitat types (streams, wetlands, and open waters) as a result of reclamation will be an improvement over the existing condition." The applicant should detail the existing physical, biological and chemical conditions of all impacted streams in order to document the current functions provided by these resources, and demonstrate within the mitigation plan and performance standards how they will achieve improvement of water quality and habitat over existing conditions.

- Generally, data provided on the stream assessment worksheets should be consistent. For example, page 6 of the application states that worksheets completed or modified in January and February 2010 do not include Missouri Stream Method functionality parameters. All worksheets submitted with the application should omit the Missouri Stream Protocol information. Further, the "AG" descriptor should not be included on any of the worksheets.

- The application includes a table that contains the stream ID, location and flow regime information for each stream. However, it does not identify the proposed impact (ex. mine-through, haul road crossing, sediment pond). The table should detail the total lf of each stream delineated, lf of proposed impacts to each segment and the type of impact proposed. Additionally, the applicant must provide the following information from the SMCRA permit to enhance and expedite the Section 404 permit application review:

  General Operations Information
  Geological Information
  Hydrological Information
  Land Use and Soils Information
  Fish and Wildlife Information
  Areas Unsuitable for Mining
  Environmental Resource & Property Control Map
  Operations Map
  Pre-Mining Land Use Map
  Post-Mining Land Use Map
  Soils Map

- As detailed on page 20, Buttermilk Creek is listed by the State of Indiana as impaired for sulfates and total dissolved solids (TDS), Middle Fork Creek is listed by the State of Indiana for low dissolved oxygen (DO), E. coli, and impaired biotic communities, Black Creek-Brewer Ditch is listed as impaired by the State of Indiana for sulfates, impaired biotic communities, and TDS, Black Creek-Singer Ditch is listed by the State of Indiana as impaired for E. coli, and Busseron Creek-Tanyard Branch is listed by the State of Indiana as impaired for sulfates and TDS. The project must not cause or contribute to further impairment of these waterbodies.

- On page 20 of the application, Peabody states that "there are no numerical water quality standards for sulfate and total dissolved solids and impairment should not be listed for these parameters." This statement is incorrect as the federal regulations require waters to be listed based upon water quality standards, both numeric and narrative.[7]

- On page 21, the applicant states that "within the smaller 14-digit watersheds of the permit area, as well as the Middle Wabash-Busserson and Lower White watersheds, there are numerous unpermitted and illegal point source dischargers..." EPA requests that the applicant provide information regarding the unpermitted and illegal point source discharges so that the issues may be addressed in the Total Maximum Daily Load (TMDL) documents associated with these watersheds.

- Page 42 of the permit narrative references the terms "fully functional" and "functionally impaired" when describing certain types of streams onsite. As mentioned in previous comment letters to Black Beauty Coal Company, this description is not meaningful or necessary in this context and should be removed from the narrative.

**Cumulative Impacts**

In order to fully analyze the past, present, and reasonable foreseeable impacts as required under NEPA and the 404(b)(1) Guidelines, EPA recommends that the applicant prepare a cumulative impacts analysis that includes the impacted HUC 12's at minimum and details changes in hydrology, drainage patterns and channel composition, sediment transport, changes in discharge and retention rates and changes in runoff velocity and volume. Impact assessments for wetlands should include direct and indirect impacts from previous and current actions as well as potential impacts from future actions as a result of changes in surface and groundwater hydrology. The analysis should also discuss the ecological effects associated with the loss of forest cover and increased forest fragmentation during mining.

[7] 40 C.F.R. § 130.7(b)(3)

The permit application did minimally address past, present and future mining. A table titled "Cumulative Surface Effects Summary" which contains percentages of each watershed area affected by mining was included. Further, the applicant admits to the expansive coal reserves in the application by specifically stating that "coal does underlie all of the immediate receiving watersheds, except where already removed, and approximately half of the Lower White and almost all of the Middle Wabash-Busseron watersheds." To fully evaluate the cumulative impacts, a detailed discussion about how mining has and will affect biology and water quality in these watersheds needs to be included in the cumulative impacts discussion.

**Currently Permitted and Proposed Impacts**

A Section 404 permit was issued for the Bear Run East Pit project, LRL-2006-1614-GJD (S-256-1, S-256-2, S-256-3), in October 2007. EPA objected to the project in a letter dated March 1, 2007 because the alternatives analysis was deficient and the mitigation plan was inadequate to compensate for unavoidable impacts. Additionally, EPA asserted that the project would likely result in further impairment to Black Creek-Brewer Ditch and Buttermilk Creek water bodies in the Busseron Creek watershed. The Bear Run East Pit permit area is 4,476 acres in size. Permitted impacts include 122,785 linear feet of stream and 61.6 acres of wetland south of Dugger in Sullivan County, Indiana.

Proposed impacts for Bear Run Amendment 4 (S-256-4) include a total of 126,686 linear feet of stream impacts and 27.46 acres of wetland impacts. The proposed project is also located south of Dugger in Sullivan County, Indiana. According to a Peabody Energy news release dated April 15, 2009, Bear Run "will be the largest surface mine in the Eastern United States."

The "Cumulative Activity" discussion included in the Section 404 permit application contains information that the proposed activities fall within two 8-digit HUC watersheds - the Middle Wabash-Busseron Creek (05120111) and the Lower White River (05120202). The section provides general information and data regarding the affected watersheds, land cover, and cropping practices. The table mentioned above, "Cumulative Surface Effects Summary," is accompanied by a brief narrative is included that touches on the cumulative effects of previous, current and potential future mining activities. According to the applicant, the areas previously affected by mining activities are "either reclaimed or abandoned," the areas currently affected by mining include the "actively working open pits, locations of coal preparation and handling activity and areas that do not have topsoil yet placed over the spoil. Underground mining activities that include location of surface support facilities and coal preparation and handling activities are also included." For areas potentially affected by mining, Peabody only provides general information regarding "permitted surface mineable reserves." The section also includes assessed and impaired waters that would be affected by the project, information about active NPDES permits and data sheets that generally include Qualitative Habitat Evaluation Index (QHEI) scores for locations in the Lower White River watershed and data sheets that included locations of macroinvertebrate sampling points and Macroinvertebrate Index of

Biotic Integrity (mIBI) scores for each in the Middle Wabash-Busseron Creek watershed. (All data was collected by Indiana Department of Environmental Management).

**Connected Actions**

An article on the website, *Mining Technology*, details the profile of the Bear Run Coal Mine.[8] The profile mentioned that a rail spur and gasification plant would be constructed for Peabody. The 5.2 mile industrial rail spur is an Indiana Rail Road Company project. This rail spur is reported to be in development to exclusively serve the Bear Run Coal Mine. Further, the article states that the gasification plant is to be constructed by Duke Energy for Peabody in Edwardsport, Indiana. Given the size and landscape position of these projects, impacts to water resources and a full suite of other environmental impacts are likely (e.g. increased carbon dioxide emissions). EPA requests project details, including the purpose, timing, and the extent of impacts of the above-mentioned projects be submitted to the Corps, and that the Corps consider these actions to be part of the overall scope of application review as a connected action to the surface mine. If appropriate, the ecological impacts should be considered in the cumulative impacts analysis and possibly as a part of the Section 404 application under the requirements for a single and complete project.

An action is connected if: 1) it automatically triggers other actions; 2) will not proceed unless another action is taken previously or simultaneously, or 3) is an inter-dependent part of a larger action. Based on this definition of a connected action, we believe the industrial rail spur and coal gasification plant should be analyzed as connected actions.

**Reasonably Foreseeable Impacts**

As mentioned above, the Bear Run Coal Mine support facilities are not detailed in the Section 404 permit application. The *Mining Technology* article indicates that Peabody's coal commitments are currently at 90 million tons of coal and Peabody is developing the Bear Run Coal Mine to meet its long term commitments. The article maintains that Bear Run Coal Mine has a 200 million ton reserve. The current Bear Run East Pit facility is projected to produce 14.1 million tons of coal and the proposed Bear Run Amendment 4 facility is projected to produce an additional 42.5 million tons of coal. In total, Bear Run East Pit and Bear Run Amendment 4 are projected to produce 56.6 million tons of coal. EPA requests that the applicant explain where, when and how the additional 143.4 million tons of reserve would be extracted.

The potential for project expansion beyond the proposed Bear Run East Pit and Bear Run Amendment 4 was further highlighted in a Peabody news release of April 2009.[9] This news release stated that "Peabody has entered into contracts representing nearly $6 billion in long-term revenues for Bear Run." Based on landscape position, location of the

[8] http://www.mining-technology.com/projects/bearrun-coal/
[9] http://www.peabodyenergy.com/pdfs/Q109EarningsRel.pdf

coal resource and Peabody's need to fulfill long-term contracts, that future impact to aquatic resources as a result of these interdependent projects will likely occur.

**Cumulative Impacts Summary**

The cumulative impacts discussion is deficient and should include more information about locations, extent, and dates of previous mining, present locations and extent of current mining, reasonably foreseeable mining activities and infrastructure needs in relation to the impacts to the Lower White River and Middle Wabash-Busseron Creek watersheds. This assessment should discuss how the proposed operation, in conjunction with previous, current and future operations within the watershed, may affect the physical, chemical and biological integrity of the Lower White River and Middle Wabash-Busseron Creek watersheds as a result of the loss of headwater water resources and wetlands.

**Mitigation Plan**

Proposed actions to compensate for unavoidable impacts to waters should only be considered following an adequate alternatives analysis and minimization of impacts, which, as stated above, need to be strengthened. However, after reviewing the available information, EPA believes that the mitigation plan for the proposed project is inadequate, as it does not meet the minimum requirements set forth in the 2008 Compensatory Mitigation Rule. Please see comments below in regards to the proposed mitigation plan:

- The applicant proposes to reconstruct intermittent streams at a ratio of 1:1 with 100 ft wide riparian buffers and ephemeral streams at a ratio of 0.5:1 with 50 ft wide riparian buffers. Wetlands would be mitigated at a ratio of 3:1 for PFO, 2:1 for PEM, 2:1 for PSS and 2:1 for PUB in un-mined areas and any wetlands in previously mined and reclaimed areas would all be mitigated with PFO at the following ratios: PFO at 2:1, PSS at 2:1, PEM at 1.5:1, and PUB at 1.5:1. Once the least environmentally damaging practicable alternative has been identified, the amount of mitigation required to compensate for lost functions and values can be determined.

- Peabody needs to include the following items in a clear, organized table: the name/identification of each proposed mitigation feature, its approximate location, type of mitigation proposed (wetland or stream), proposed flow regime or plant community, size (linear foot or acreage), buffer width, and plant community/land use of the buffer.

- On page 45, Peabody states that all natural design streams will be constructed with a riparian buffer on either side of the stream, but only the Rosgen "C" channel type will have an enhanced floodplain constructed." The applicant should expand the discussion to include information about what they mean by "enhanced floodplain" and why it will only be constructed for Rosgen "C"

channels. The applicant should detail what they will be constructing on non-Rosgen "C" channels.

- Peabody has been asked to remove all in-lieu fee language in previous comment letters from EPA, but on page 54 of the revised application, the applicant makes reference to in-lieu fee. That language must be removed as it is our understanding there is no mechanism for in-lieu fee in Indiana.

- **Performance Standards-**In general, the applicant needs to be more specific about the ecological performance standards to be achieved so that the success of mitigation areas may be properly evaluated. EPA and Corps regulations require that an "approved mitigation plan must contain performance standards that will be used to assess whether the project is achieving its objectives."[10] The regulations also require that performance standards "relate to the objective of the compensatory mitigation project, so that the project can be objectively evaluated to determine if it is developing into the desired resource type, providing the expected functions, and attaining any other applicable metrics (e.g. acres)." These performance standards must be included in the mitigation plan.[11] The wetland evaluation should include more detail than meeting the criteria necessary to be defined as a wetland per the 1987 Wetland Delineation manual. At minimum, information should include evaluations of physical habitat, vegetative cover, survivability of plantings and percent coverage of invasive species. These measures should be in place to demonstrate that post mining conditions will be similar or better than pre-mining conditions. Furthermore, using the Rosgen assessments to determine the success of stream mitigation does not capture the true ecological profile of a stream. In addition to Rosgen stream assessments, the applicant should develop performance criteria for the streams using the EPA Rapid Bioassesment Protocol (EPA RBP). The applicant has completed EPA RBP datasheets to gather baseline information for the streams onsite and must develop performance standards associated with the overall EPA RBP score for each mitigation reach. The special conditions of the Corps permit should include general standards for the overall EPA RBP scores of mitigation streams. The results must be included in the monitoring reports submitted to the Corps.

- **Adaptive Management-** The adaptive management plan should be expanded to include a "strategy that anticipates likely challenges associated with anticipated with compensatory mitigation projects and provides for the implementation of actions to address those challenges, as well as unforeseen changes to those projects."[12] The applicant should also consider the risk associated with implementing the plan and the complexity of the mitigation when developing an adaptive management plan. Procedures should be established for identifying, reporting, and implementing remedial actions according to specific timelines, in the event they are necessary. The discussion about contingency in the permit

[10] 33 C.F.R. § 332.5(a); 40 C.F.R. § 230.95(a)
[11] 33 C.F.R. § 332.4(c); 40 C.F.R. § 230.94(c)
[12] 33 C.F.R. § 332.2; 40 C.F.R. § 230.92

application is very general and the applicant indicates that issues will be addressed as they arise. A greater level of pre-planning is needed to instill confidence that any remedial actions will be conducted appropriately and in a timely manner.

- **Financial Assurances-**The applicant is not currently offering financial assurances for the stream and wetland mitigation onsite. The applicant must provide information regarding the Financial Assurances that will be provided and what form they will take. The mitigation rule provides that the "district engineer shall require sufficient financial assurances to ensure a high level of confidence that the compensatory mitigation project will be successfully completed."[13] The amount of required financial assurances "must be based on the size and complexity of the compensatory mitigation project, the degree of completion of the project at the time of project approval, the likelihood of success, the past performance of the project sponsor, and any other factors the district engineer deems appropriate."[14] If the applicant does not provide the necessary information to the Corps, then the district engineer will be unable to determine the required amount of financial assurance that is needed. Ultimately, the mitigation plan must include more detailed information than what was provided by the applicant to satisfy the Mitigation Rule so as "to ensure a high level of confidence that the compensatory mitigation project will be successfully completed in accordance with its performance standards."[15]

- **Long-Term Protection-** The current proposal does not include any provisions for long-term protection of mitigation streams and wetlands. In order to receive mitigation credit for proposed stream and wetland mitigation, the mitigation areas must be protected by a conservation easement, environmental covenant, deed restriction, or other site protection instrument, as required by the 2008 Compensatory Mitigation Rule.[16] Long-term protection of the mitigation areas must be included as a condition of the Section 404 permit.

**Biological Monitoring Report**

As a part of the monitoring program for affected and reconstructed streams, biological monitoring is required to ensure there is no degradation to the communities that inhabit the streams. Biological monitoring, along with water chemistry and physical assessments, must occur prior to the initiation of mining activities to establish baseline conditions, during the mining activities to assist in determining potential impacts to aquatic habitat and water quality downstream of the impacts, and must continue at least five years after the completion of stream restoration and site reclamation activities at the mine site where appropriate to determine mitigation success. The suite of monitoring requirements should be included in the conditions of the Corps permit.

---

[13] 33 C.F.R. § 332.3(n)(1); 40 C.F.R. § 230.93(n)(1)
[14] 33 C.F.R. § 332.3(n)(2); 40 C.F.R. § 230.93(n)(2)
[15] 33 C.F.R. § 332.4(c)(13); 40 C.F.R. § 230.94(c)(13)
[16] 33 C.F.R. § 332.7(a); 40 C.F.R. § 230.97(a)

Overall, the EPA has several concerns regarding the Bio-Assessment report provided as Appendix I to Section 404 application as detailed below:

- The applicant's use of only 6 biological sample points to characterize over 126,000 linear feet of 374 streams is grossly inadequate. This sampling effort only accounts for less than 2% of the streams onsite. EPA recommends the applicant assess all streams for biology on site. This data would give the Corps the baseline information needed to ensure that the same biological communities return upon stream reconstruction.

- Please ensure the applicant removes all references in the Bio-Assessment Report to small drainage areas being a cause of impairments. Headwater streams are an important part of the river continuum. Headwater streams located in the upper reaches of stream networks are associated with small drainage areas. Further, the amount of water in the upper headwaters may be a limiting factor in the presence and/or diversity of a biological community, but it is not the cause of impairment.

- As mentioned in previous comments to Black Beauty Coal Company, the applicant should replace all references to the EPA QHEI with EPA RBP.

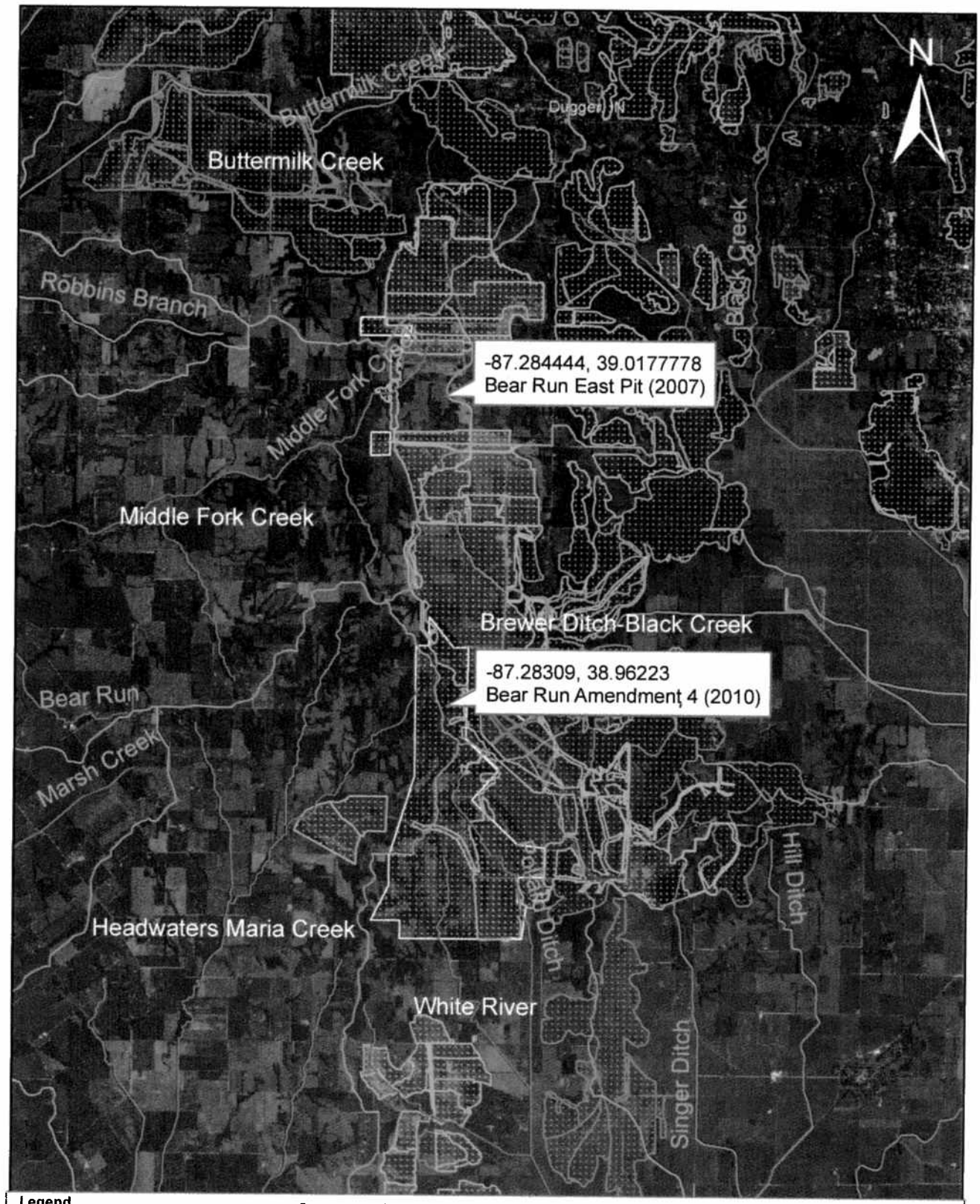
- Both the application and the accompanying quality assurance plan discuss two methods for the collection of macroinvertebrates, however, it is not specified which method was used at each of the six sampling locations. Please have the applicant further define and explain the methods used for the assessments. The quality assurance plan also fails to discuss or describe the methods used for fish collection, processing or data analyses. The applicant should revise this section to discuss all methods which were used for sample collection.

- The key on the Biological Sample Points (North) map and Biological Sample Points (South) map are not the same. It is recommended that the applicant revise the maps for clarity.

- Section 5.0 Discussion lacks specifics regarding findings of the sampling effort. For example stream 8NS1H was recorded to have had 49 individual fish, and 128 macroinvertebrates. However, in various sections throughout the application, stream 8NS1H is listed as a 70 linear foot long ephemeral stream. EPA would expect the discussion to highlight why an ephemeral stream (8NS1H) had such high species diversity and fish species present during a June sampling event. Additionally, other streams recorded biological data which was more diverse than expected for several streams in comparison to flow regimes. For example, 18NS13-2 was listed as an intermittent stream but it also supported a fish population. Another ephemeral stream 8NS1I was recorded as having 101 macroinvertebrates. Due to these unexpected sampling results, EPA requests to review all of the field data sheets for the biological and physical stream assessments.

- The applicant asserts that "the EPA habitat evaluation...does not consider drainage area or slope when scoring habitat and also doesn't reflect another important character of the streams at the Bear Run site. This is likely to the regional specificity of the Ohio QHEI. IDEM's Assessment Branch uses the Ohio QHEI in assessing whether or not its streams determined to have impaired biotic communities due to habitat or other reasons." There are a few issues associated with this excerpt. As mentioned in previous comments to Black Beauty Coal Company, EPA's methodology does account for slope as the habitat assessments are based on the stream being a high gradient or low gradient stream. If the rapid assessment was done for the wrong gradient the results could be skewed as definitions of the condition category differ between high and low gradient streams for each habitat parameter. Second, the discussion references "another important character of the streams at the Bear Run," however no mention is made to what the unevaluated "character[istic]" is at the Bear Run site. Finally, the next sentence in this excerpt focuses on the Ohio QHEI being regionally specific. However, the previous sentence does not discuss the Ohio QHEI, but discusses the EPA RBP protocol.

- The applicant states "there is no standard set by IDEM for the EPA QHEI, but a score of less than 100 indicate that the sites possesses less than 50% of the maximum score for habitat quality. Sites below this mark could be thought of as lower quality." This statement highlights the applicant's apparent misunderstanding of the EPA RBP. The EPA RBP is a tool designed to evaluate streams in comparison to regional reference sites and what regionally would be typical of streams. The scoring is not intended to be extrapolated as a total score out 200 points.




# Cumulative Impact of Mining in Sullivan County and Surrounding Area

Bear Run Mine (Amendment 4)
Location Map of proposed mine and previous mined areas.

Source: COAL_MINE_SURFACE_IN: Surface Coal Mines in Indiana (Indiana Geological Survey, 1:24,000, Polygon Shapefile), August 25, 2009.
http://coalminemaps.indiana.edu/downloads.html